REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 9, 12 and 18 are cancelled. Claims 7-8, 11 and 16-17 are amended. Claims 7-8, 11 and 16-17 are pending in the application.

Entry of Amendment under 37 C.F.R. § 1.116

The Applicant requests entry of this Rule 116 Response because: the amendments were not earlier presented because the Applicant believed in good faith that the cited references did not disclose the present invention as previously claimed; and the amendment does not significantly alter the scope of the claim and places the application at least into a better form for purposes of appeal.

The Manual of Patent Examining Procedures (M.P.E.P.) sets forth in Section 714.12 that "any amendment that would place the case either in condition for allowance or in better form for appeal may be entered." Moreover, Section 714.13 sets forth that "the Proposed Amendment should be given sufficient consideration to determine whether the claims are in condition for allowance and/or whether the issues on appeal are simplified." The M.P.E.P. further articulates that the reason for any non-entry should be explained expressly in the Advisory Action.

I. Rejection under 35 U.S.C. § 101

In the Office Action, at page 2, numbered paragraph 2, claim 12 was rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Claim 12 is cancelled.

II. Claim Objections

In the Office Action, at page 2, numbered paragraph 3, claims 8-9, 12 and 16-18 were objected to as failing to further limit the subject matter. Claims 9, 12 and 18 are cancelled.

As to amended claims 8 and 16-17, Applicants respectful traverse the Examiner's objection. Claims 8 and 16-17 further limit the scope of the claimed invention recited in independent claim 7. The Examiner notes that claims 8-9, 12 and 16-18 "do not recite additional structure of the claimed apparatus." However, with respect to "wherein" clauses, the determination of whether each of these clauses is a limitation in a claim depends on the specific facts of the case." In *Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1329, 74 USPQ2d 1481, 1483 (Fed. Cir. 2005), the court held that when a '"whereby' clause states a condition that is material

to patentability, it cannot be ignored in order to change the substance of the invention." *Id.* Claims 8 and 16-17 state conditions that are material to patentability and further limit the scope of the claimed invention recited in independent claim 7. Accordingly, withdrawal of the claim objections is respectfully requested.

III. Rejection under 35 U.S.C. § 112

In the Office Action, at page 3, numbered paragraph 5, claims 8-9, 11, 12 and 16-18 were rejected under 35 U.S.C. § 112, 2nd paragraph as being indefinite. Claims 9, 12 and 18 are cancelled.

The Applicants respectfully traverse the §112, 2nd paragraph rejection for the reasons set forth above with respect to defined structure.

As to claim 11, it is respectfully submitted that the limitation of the fact that "the load of the mold clamping servomotor is detected by detecting a current value of the mold clamping servomotor" is not indefinite and further limits the scope of the claimed invention.

Claims 8, 11 and 16-17 are amended to further clarify the invention. Accordingly, the Applicants respectfully request withdrawal of the § 112, 2nd paragraph rejection.

IV. Rejection under 35 U.S.C. § 103

In the Office Action, at page 4, numbered paragraph 8, claims 7-9, 11, 12 and 16-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,642,405 to Eggenberger et al. or U.S. Patent No. 4,832,884 to Speck et al. in view of any one of U.S. Patent No. 6,413,453 to Onishi, U.S. Patent No. 5,912,025 to Hiraoka, U.S. Patent No. 5,792,483 to Siegrist et al. and U.S. Patent No. 5,469,038 to Silvey. This rejection is respectfully traversed.

Claims 9, 12 and 18 are cancelled.

As a non-limiting example, the present invention as set forth in claim 7, for example, is directed to an injection molding machine using a toggle mechanism to effect the moving of a movable platen of the molding machine toward a stationary platen. A machine includes a load detecting means that detects a load acting on the mold clamping servomotor at mold unclamping. A difference between the load detected every predetermined number of molding cycles (or the average of the loads) and a predetermined reference load of the servomotor is found and the rear platen is adjusted according to the difference.

Eggenberger discusses an apparatus for controlling operation of a press that includes a stationary mold carrier plate, a movable mold carrier plate, a joint plate, and a toggle joint system interposed between the movable mold carrier plate and the joint plate. In Eggenberger, "the essential feature of the mold closing monitoring and correcting procedures of the invention consists in determining the peak of the mold closing power, appearing within a certain range of the mold closing path at both sides, before the final closing of the mold, and to act correspondingly on the adjustment in either a tightening or a loosening sense" (col. 5, lines 13-18). Further, in Eggenberger, "when the value of the driving power to be expended by the driving motor for closing the mold exceeds a certain limit or drops below a certain limit, or a range between an upper and lower limiting value, the shifting device is operated within a certain range of movement of the oppositely moving mold carrier plates during closing of the molds" (col. 2, lines 8-13).

While Eggenberger discusses operating a shifting mechanism for adjusting the length of the beams in a direction to restore the power required by the driving motor to close the mold parts to a predetermined value range, Eggenberger does not discuss or suggest that the load during unclamping is detected every predetermined number of molding cycles or an average of such loads, that a difference is found between the detected load and a predetermined reference load of the clamping servomotor, and that adjustment is made based on the difference found. Eggenberger discusses shifting the joint plate 3 in a direction to restore the required power to a predetermined value range, but does not discuss or suggest that the adjustment is made according to the difference between the detected load and the reference load during mold unclamping. The present invention as set forth in claim 7 discusses using the peak current Ip(-) detected during mold unclamping, which, as seen at Figure 2, is a value different from that of the peak current Ip(+) detected during mold clamping. Eggenberger, on the other hand, discusses the driving power of the driving motor for closing the mold, but does not discuss use of a load detected during mold unclamping. Further, Eggenberger does not discuss or suggest that automatic adjustment occurs according to a difference between a detected load detected every predetermined number of molding cycles or an average of such loads and a predetermined reference load. Eggenberger discusses adjusting the effective length of the beams, but does not make any discussion involving use of a detected load detected every predetermined number of cycles or an average of the loads and comparing this detected load to a predetermined reference load.

With respect to Speck, Speck discusses that an actual value Si is measured at the knuckle to toggle joint 7 and a value is found. After an operating period B, the mean value is

computed for stored Si values during the operating period, and if this mean value is outside of a tolerance zone T (set from a set-point value), a control intervention will take place by stepwise changing the height of the mold until the actual value measured after each operating cycle is within the tolerance zone. Speck further discusses the measurement of the closing force during a predetermined number of operating cycles, finding an average value and determining whether it is within the predetermined tolerance zone around a set point value. Speck does not discuss or suggest that a load is detected during unclamping every predetermined number of molding cycles or an average of such loads is used, that a difference is found between the load detected and a predetermined reference load, and that adjustment is done according to that difference. Speck discusses that a control intervention takes place by stepwise changing the height until the value is again within the tolerance zone, but does not discuss or suggest that the adjustment occurs according to the difference between the detected load and the reference load. Further, Speck does not discuss or suggest that load detecting means detects a load acting on the mold clamping servo-motor during mold unclamping, but merely discusses measurement of a closing force.

Therefore, the combination of Eggenberger and Speck does not discuss or suggest "load detecting means for detecting a first load acting on the mold clamping servo-motor during mold unclamping; and mold clamping force adjusting means for automatically adjusting a position of the rear platen according to a difference between a first load of the mold clamping servo motor detected by said load detecting means every predetermined number of molding cycles, or an average of such loads, and a predetermined reference load of the mold clamping servomotor."

The Examiner alleges that Onishi, Hiraoka, Siegrist and Silvey make up for the deficiency of Eggenberger and Speck by discussing a correlation between the clamping force and the servomotor current load.

Onishi discusses a method of controlling mold clamping force including the steps of providing the toggle mechanism, and the servo motor as discussed above, and controlling the mold clamping force by appropriately configuring the knicking in the toggle mechanism to be in a predetermined range such that the servo motor is driven with a current which is at or near a rated current. Hiraoka discusses a mold clamping system that generates a clamping force according to a set pattern and a maximum clamping force with the set pattern being determined to be larger than the clamping force that is generated by the servo-motor within predetermined ratings. Siegrist et al. discusses mold closure movement and relating the mold closure movement with current. Silvey discusses relating current with mold clamping force. However, Onishi, Hiraoka, Siegrist and Silvey fail to make up for the deficiencies in Eggenberger and

Speck. Specifically Onishi, Hiraoka, Siegrist and Silvey do not discuss or suggest detecting a load acting on a servo-motor during mold unclamping and automatically adjusting a position of the rear platen according to the difference between the detected load detected every predetermined number of molding cycles, or an average of such loads, and a predetermined reference load.

Therefore, as the combination of Eggenberger and Speck does not discuss or suggest "load detecting means for detecting a first load acting on the mold clamping servo-motor during mold unclamping; and mold clamping force adjusting means for automatically adjusting a position of the rear platen according to a difference between a first load of the mold clamping servo motor detected by said load detecting means every predetermined number of molding cycles, or an average of such loads, and a predetermined reference load of the mold clamping servomotor", as recited in independent claim 7, and as Onishi, Hiraoka, Siegrist and Silvey fail to make up for the deficiencies in Eggenberger and Speck, claim 7 patentably distinguishes over the references relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

Claims 8, 11 and 16-17 depend either directly or indirectly from independent claim 7 and include all the features of claim 7, plus additional features that are not discussed or suggested by the references relied upon. For example, claim 16 recites that "an alarm is generated when an adjustment amount of the position of the rear platen for one molding cycle or an accumulation of adjustment amount exceeds a predetermined adjustment amount." Therefore, claims 8, 11 and 16-17 patentably distinguish over the references relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

Conclusion

In accordance with the foregoing, claims 9, 12 and 18 have been cancelled. Claims 1-6, 10 and 13-15 were previously cancelled. Claims 7-8, 11 and 16-17 have been amended. Claims 7-8, 11 and 16-17 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

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By: _____

Kari P. Footland
Registration No. 55,187

1201 New York Avenue, NW, 7th Floor
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501